Using Technology to Support Diverse Learners

Current Tips:

Digital Text

Audio

Digital Enhancement

Software

Visual

Curricular Supports

Targeted Populations

Technology Tips is a web site, a PowerPoint presentation, and materials to support hands-on staff development, customized for individual sites or districts. It's…
- focused on technologies most schools already have
- for use in professional development of technology
- for general and special educators, and staff

Differentiated Instruction
" is a model of instruction that revolves around the belief that students learn in many different ways."   (Verde, 2004)

It means
- providing materials and tasks at varied levels of difficulty with varying degrees of scaffolding, through multiple instructional groups, and
- encouraging student success by varying ways in which students work: alone or collaboratively, in auditory or visual modes, or through practical or creative means.   (Tomlinson, 2000)

Why differentiate instruction?
- Because not all children learn in the same way.
- Because NCLB says all children need to become proficient.
- Because research and practice demonstrate that differentiated instruction techniques are effective.
- Because we can maximize student's growth by meeting each student where he or she is and helping them progress.
- Because of the diversity of students found in today's classrooms. (ELL, disabilities, cultural backgrounds, etc.)

Technology can help you tailor instruction to meet the needs of all students by allowing changes to:
- content
- channels of input, and
- means of output.

Technology is also an excellent platform for cooperative learning.

Using Technology to Support Diverse Learners

www.wested.org/tdl

by **WestEd's RTEC** *in partnership with the* **Alliance for Technology Access**

Digital Text

What is digital text?

Text stored as strings of characters.

- If you can select and change the font of text on the computer screen, it's electronic text.
- Many books and historical documents have been converted to digital format, for access via computer.
- New writing is being done to take advantage of hyperlinking and multi-media.

Who does it help?

- Those who have trouble reading standard print from books
- Those who need additional information or supports placed immediately near the relevant text.
- Those who could benefit manipulating or interacting with the text.

Why use digital text?

- Visual display can be varied
- Auditory display - good for pre-reading
- Allows embedding learning supports in content
  - Pre-reading background, definitions
  - Summary
  - Key questions
- Allows students to copy/paste, or otherwise manipulate the text.

Free books online

- *Digital Book Libraries* (over 90 sites listed) http://www.ditext.com/etexts.html
- *Internet Public Library* http://www.ipl.org/
- *Project Gutenberg* http://promo.net/pg/
- *University of Virginia's e-Book Library* http://etext.lib.virginia.edu/ebooks/ebooklist.html
- *American Memory* at http://memory.loc.gov/
- Alex, (Literature & philosophy) *http://www.infomotions.com/alex/*
- The Oxford Text Archive catalog, *http://ota.ahds.ac.uk/*
- Project Bartleby has many reference books, poetry texts, and historical editions. *http://www.bartleby.com/*

Examples of free digital text by author

Dickens	Robert Frost
Mark Twain	Edgar Allan Poe
Edgar Rice Burroughs	
Jack London	Rudyard Kipling
Jane Austin	Beatrix Potter

Examples of free digital text by title

Declaration of Independence
Bulfinch's Mythology
Bartlett's Quotations
Tom Sawyer
Alice in Wonderland
Wizard of Oz
The Tell-Tale Heart
Oliver Twist
Little Women

Almost free books online

Benetech's BookShare, http://www.bookshare.org
Over 12,000 titles of books still in copyright.

- Individual subscriptions enable "all-you-can-read"* access to books in easy-to-use digital formats for a full year. Subscriptions are $75 the first year, then $50.
- School subscriptions also available at $300 for 30 books, $450 for 60 books, or $600 for 100 books.

Using Technology to Support Diverse Learners

Audio (Talking Text)

What is talking text?
- Words on the screen are read by the computer, on command.
- In some cases, the words need to be highlighted first.
    - allows reading of individual words or phrases.
    - works with word processors, websites, and more.
    - often called text-to-speech.

Who does it help?
- Students who struggle with the task of composing grammatically correct sentences;
- Those who could benefit from hearing omissions or inaccuracies in their work;
- Those who could benefit from auditory input to support reading.

What does research say?
- Developing reading comprehension is a complex skill.
- If a great deal of effort goes to sounding out words, energy for comprehension is reduced.
- Talking text can provide one more tool for supporting comprehension for some students. (Rose & Dalton, 2002)
- Many students improve editing and proofreading.
- Hearing one's own words is rewarding and motivating.
  Note: You WILL need headphones.

Benefits of talking text
- Talking text allows a student to select individual words that they may be having problems with and can support reading at a

There are three main ways to get computer text to talk. The easiest is to use speech features within a program such as Kidspiration. Another way is to use a utility, so that text highlighted within any program will talk. A third way is to use a free or commercial talking word processor. Speech in existing software includes:

Kidspiration
- The Listen tool (Symbol of an ear) reads the words in their projects.
- The Record command (click Record on the Goodies menu) can record sounds so they can be attached to symbols or ideas to expand and reinforce learning. This allows a teacher to record instructions for students to use in an activity.

Inspiration
To turn on the Listen tool, got into "Application Properties" from the Utility menu. Next, check the box that corresponds to the Listen tool.

Kid Pix
Make selections under the Speech Menu
- Read Text Aloud
    - Reads text entered with the keyboard, using typewriter key
    - Text boxes will be read in order, top to bottom
- Pick a Voice
    - Dialog box with choice of voices
    - Preview to hear how each sounds
    - Click OK to select a voice

AppleWorks (Mac)
- Open a Word Processing document.
- Highlight text and click "lips" or "text to speech" icon in the button bar.
- If there is no "talking" icon in the tool bar:
    - . Open Preferences, Available buttons, Word Processing
    - . Drag "lips" into button bar, click "done".

AppleWorks (Windows)
Similar to Mac but if there is no "talking" icon in the tool bar, do this:
- Press the button with a triangle in the top left of the tool bar.
- Select Default *and* Visible at Start Up.
- Press the triangle button again and select Edit Button Bar.
- Select Default and Modify. From the pulldown menu, Button Categories, select Word Processing.
- Select Speak Text, a dialogue box will explain the function.

higher level. • Emerging writers experience the connection between the spoken and written word from the writing perspective.	- Select Add, OK and Done. This adds the Plain Talk button to your tool bar. Change voices via the Speech Control Panel StoryBook Reader Deluxe Look for Speech under Goodies

Talking Text: Utilities

Utilities will read highlighted text within other programs, such as MS Word, web browsers, etc.

MACINTOSH
How to provide talking text - Mac OSX (10.3.1)
Go to Speech Preferences and choose:
- Finder menu, System Preferences, Speech, Spoken User Interfaces
- Set key to read highlighted text (Command plus __)
- Choice of voices & rate (under Default Voice)

Macintosh (10.2 or earlier)
Download free utility called HearIt
> *http://www.ldresources.com/files/hearit.sea.hqx*
- Install as a control panel and restart.
- Set key combination (Hit Control plus L to hear text.)
- Works with highlighted text in any program
- Deselect text to stop the talking.

WINDOWS
There are free Microsoft voices that are of reasonable quality, but the AT&T Natural Voices are the most human sounding. Sometimes AT&T Natural Voices are bundled with other software and sometimes they are offered for an additional $30.

Windows XP: Natural Voices
Free version reads text, Word, pdf, and email using hot keys or a floating toolbar. Highlights each word as it is read. Professional version includes Natural Voices Mike & Crystal. $39.50
http://www.naturalreaders.com

Windows XP & 2000: Universal Reader
$39.95 utility that works within other software, including browser. Price includes AT&T Natural Voices.
   Very easy to use.
   Operates via a floating toolbar that has a "speak" button.
   http://www.premier-programming.com/UR/Ureader.htm

Windows 3.1 & 95: HELPRead™
Free utility that works with other software, including browser.
   http://www.dyslexia.com/helpread.htm

Windows: ReadPlease 2003™
Free utility that reads text which has been highlighted and copied.
Works on Windows 95/98/ME/NT/2000/XP.
   Includes 3 Microsoft voices.

Using Technology to Support Diverse Learners
www.wested.org/tdl
by **WestEd's RTEC** *in partnership with the* **Alliance for Technology Access**

Free conversion utility to make MP3 files.
http://www.readplease.com/english/readwords.php

Microsoft Reader™ for Windows 98 and newer (Also Pocket PC 2002 and Tablet PC)
This is a specialized reading utilityt that works with eBooks that have been formatted for MS Reader
(Many free from the University of Virginia etext site.) It offers great ease of visual reading,
control of font size , ability to annotate, and other features.
You will also need to download the free Microsoft Reader Text-to-Speech Package*.*
http://www.microsoft.com/reader/downloads/pc.asp

Talking Word Processors

Windows: E-Text Reader™
Free talking word processor for Windows 98SE/ME/2000/XP
Highlights each word as read & has adjustable speed of reading.
Allows zoom, colored highlighting & find.
Allows setting bookmarks, for jumping from forward and backward.
Opens .doc files (Microsoft Word)
Sounds best with AT&T Natural Voices ($29.95)
http://www.premier-programming.com/elib/etext_reader.htm

Macintosh: Tex-Edit Plus™
Talking word processor -$15 shareware.
Other languages include Japanese, French, German, Spanish, Dutch, and Italian.
Will highlight each word as read.
Can change highlight, font, and background colors.
Can insert voice recordings and graphics. (Vicki may be the best voice.)
http://www.tex-edit.com/

Commercial products - Not free but can be worth the expense.
- Write OutLoud ($99 or less) Free 30 day trial for teachers.
- IntelliTalk ($140 or less) Free 45 day trial downloadable from *http://www.intellitools.com*
- CAST eReader ($229 or less)

Commercial products will:
- highlight sentence and word within sentence as it is read
- allow reading by letter, word, or sentence
- allow correction of pronunciation & have other helpful features.

Using Technology to Support Diverse Learners
www.wested.org/tdl
by **WestEd's RTEC** *in partnership with the* **Alliance for Technology Access**

Enhanced Text

What is enhanced text?
Think of the modern textbook. A chapter on a historical period might include:
- a timeline,
- a photograph,
- a reproduction of art featuring an important historical figure,
- a graphic of a historical document, and
- questions for reflection.

A related reader's guide for English learners might include
- definitions of difficult words,
- cultural context, and
- explanations of idioms.

Put all these types of resources into an electronic document or website, and you have the textbook of the future. Today we can find an increasing number of sources with
- Added information, questions, links, graphics, or videos to enhance comprehension
- Audio versions, in a variety of formats, that can accompany text.

Who does it help?
- Students with learning disabilities
- Students who find reading challenging
- Students who may struggle with vocabulary (LEP)
- Students who come from diverse cultures

National Reading Panel research
Techniques to enhance comprehension include:
- questions that allow self-monitoring for understanding,
- using graphic and semantic organizers,
- student-generated questions about the text,
- becoming aware of story structure, and
- periodically summarizing key points.

Strategies for enhancing text
Preview:
- background
- summary
- visual summary
- vocabulary

Reading strategies
- questions about content
- breaking down complex sentences
- making predictions

Review and assess
- compare and contrast
- story mapping

Literary analysis
- plot, mood, theme, style, point of view

Enhanced text: Sources
Find these links and more at the Tech Tips website.
The Intersect Digital Library Catalog
http://intersect.uoregon.edu/
- The Diary of Opal Whiteley
- The Diary of Juan Bautista de Anza
- Your Genes, Your Choices: Cloning
- On the Run
- An American History Sourcebook

Spark Notes *http://www.sparknotes.com*
Example: *Harry Potter and the Chamber of Secrets*

Prentice Hall Literature website for *Timeless Voices, Timeless Themes* at *http://www.phschool.com/atschool/literature*

Using Technology to Support Diverse Learners

Curricular Support: Microsoft Word

There are some great features to Microsoft Word that support differentiation strategies. These include:
- Computer-generated summaries can identify essential content for students to pre-read
- Highlight text can focus on key words, themes, characterizations, main ideas
- Changing how the text looks on the screen allows user preference for font: type, size, and color.
- Adjusting the grammar checker allows the teacher to reduce frustration for students or target specific errors
- Determining the readability of text tells you the grade level for any document.

How are they used?

Auto-Summarize
- Pre-reading for meaning
- Post-reading to self-test or summarize

Highlighting Text
- Adding color to text increases the odds that the information will be stored in long-term memory and more readily recalled**.**
- Generally speaking, when emerging readers read, they skip over words they don't understand. Highlighting such words as they read cues them to go back later and decipher the meaning of the selection.

Changing the text display helps students who are having difficulty reading standard text on the screen.

Grammar checking can be made more appropriate to the task or grade level by checking off individual features, among the 26 options.

Readability can be used with electronic text to determine grade level, or when simplifying text.

How to Auto-Summarize
Under Tools, choose Auto-Summarize
   Dialog Box gives choices on:
     - % or size of summary
     -   Method: highlight, summary on top, etc.

How to do highlighting
Select text. Select highlighter in formatting palette.

How to change the display in Word
Preferences, General: blue background with white text
Font: Serif or sans-serif, size, and color

How to modify the Grammar Checker
Preferences, Spelling and Grammar, Grammar, Writing Style: Customize grammar checking
- Casual,
- Formal, or
- Custom: 26 settings such as capitalization, contractions, passive voice, run-on sentence, etc.

How to Get Readability Statistics
Under Tools, choose Spelling,
   Spelling and Grammar Dialog box:
   Options button
    Grammar: Show Readability Statistics

More Word Features

- **Enlarge the toolbar icons**: Larger icons can help younger students and those with visual impairments. (Windows only)

- **Reduce the number of toolbar icons:** To provide fewer or targeted choices.

- **Magnifiy text**: Various views allow larger text without increasing font size.

- **Increased space between lines:** Enables some students to read more easily.

- **Creating a To Do list** with checkboxes can help some students stay organized and on task.

- **Adding tables** can organize student note-taking or help display rubrics.

- **Using bullets and number lists** can assist students in developing outlines.

- **Writing prompts** can be created to guide a student to place text in a structured draft. When the prompts are removed, a paragraph emerges.

- **Adding comments** allows the teacher or students to put in questions or text that remains hidden until selected.

- **Thesaurus** can help expand vocabulary.

- **Text boxes** can be created as Word Lists to prompt students to use specific vocabulary or to store words that need to be looked up later. Text boxes can also be used for comments.

- **Translation capabilities** exist in the lastest Windows versions of Word where a foreign language dictionary is installed. This can be helpful for single word translation.

- **Embedding hyperlinks** can turn a document into a navigation tool.

- **Text to speech**: In Windows, a free program, Natural Reader, can read directly in MS Word. Windows XP also offers some text to speech functionality. On Macs, the system can read highlighted text in Word.

To obtain handouts for additional topics, contact Julie Duffield (jduffie@wested.org).